Method of Fusion Splicing Silica Fiber with Low-Temperature Multi-Component Glass Fiber

ABSTRACT OF THE INVENTION

A low-cost approach provides a low loss and mechanically robust fusion splice between a standard silica fiber and a low-temperature multi-component glass fiber. An asymmetric heating configuration creates a temperature gradient between the silica and multi-component glass fibers that enhances diffusion, hence bond strength. The multi-component glass fiber may also be drawn with an outer cladding of a different multi-component glass. The outer cladding is selected so that it is thermally compatible with the multi-component glass used for the core and inner cladding and compatible with forming even stronger thermal diffusion bonds with the silica fiber.